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2/8/01

In the claims, cancel claims 1-23. Add claims 24-45.

-- 24. A method of decreasing the production of IgE in a subject exposed to a dust mite allergen; the method comprising:

administering to a subject a non-pathogenic, Gram-positive bacterium that comprises (i) a nucleotide sequence that encodes a dust mite allergen and (ii) a promoter operably linked to the nucleotide sequence; and

expressing the allergen in the subject in an amount sufficient to suppress allergen-specific IgE production in the subject upon subsequent exposure to the allergen.

25. The method of claim 24 in which the bacterium is of the genus *Lactobacillus*, *Streptococcus*, or *Bifidobacterium*.

26. The method of claim 25 in which the bacterium of the genus *Lactobacillus*.

27. The method of claim 26 in which the bacterium is *Lactobacillus acidophilus*.

28. The method of claim 24 in which the dust mite allergen is an allergen of *Dermatophagoides pteronyssinus*, *D. farinae*, *D. microceras*, *Tyrophagus putrescentiae*, *Lepidoglyphus domesticus*, *L. destructor*, *Acarus siro*, *Euroglyphus maynei*, or *Biomia tropicali*.

29. The method of claim 28 in which the dust mite allergen is an allergen of *Dermatophagoides pteronyssinus*.

30. The method of claim 24, wherein the allergen is a protein allergen.

31. The method of claim 24, wherein the allergen is a Der p 5 allergen.

32. The method of claim 29 in which the allergen is Der p 5.

33. The method of claim of claim 24, wherein the promoter is a constitutive promoter.

34. The method of claim 24, wherein the allergen is administered orally.

35. The method of claim 34, wherein the allergen is administered as a yogurt.

36. A method of decreasing the production of IgE in a subject exposed to a dust mite allergen, the method comprising:

administering to a subject a lactic acid bacterium that expresses a dust mite allergen; and  
expressing the allergen in the subject in an amount sufficient to suppress allergen-specific  
IgE production in the subject upon subsequent exposure to the allergen.

37. The method of claim 36 in which the dust mite allergen is an allergen of  
*Dermatophagoides pteronyssinus*, *D. farinae*, *D. microceras*, *Tyrophagus putrescentiae*,  
*Lepidoglyphus domesticus*, *L. destructor*, *Acarus siro*, *Euroglyphus maynei*, or *Biomia tropicali*.

38. The method of claim 36 in which the dust mite allergen is an allergen of dust mite of  
*Dermatophagoides* genus.

39. The method of claim 36 in which the bacterium is of the *Lactobacillus* genus.

40. The method of claim 36 in which the bacterium is administered orally.

41. The method of claim 40 in which the bacterium is administered as a yogurt  
composition.

42. The method of claim 36 in which the subject is a human subject.

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43. A method of decreasing the production of IgE in a subject exposed to an aeroallergen allergen, the method comprising:

administering to a subject a non-pathogenic, Gram-positive bacterium that comprises (i) a nucleotide sequence that encodes an aeroallergen and (ii) a promoter operably linked to the nucleotide sequence; and

expressing the aeroallergen in the subject in an amount sufficient to suppress aeroallergen-specific IgE production in the subject upon subsequent exposure to the aeroallergen.

44. A method of relieving bronchopulmonary congestion in a subject exposed to a dust mite allergen, the method comprising:

administering to a subject a lactic acid bacterium that expresses a dust mite allergen; and  
expressing the allergen in the subject in an amount sufficient to relieve  
bronchopulmonary congestion in the subject upon subsequent exposure to the dust mite allergen.

45. The method of claim 44 in which the bacterium is of the *Lactobacillus* genus, and the dust mite allergen is *Dermatophagoides pteronyssinus*. --

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In the claims:

Please amend the claims as follows:

Claims 1-23 were previously canceled.

24. (Amended) A method of decreasing the production of IgE in a subject exposed to a dust mite allergen, the method comprising:

orally administering to a subject a non-pathogenic, Gram-positive bacterium that comprises (i) a nucleotide sequence that encodes a dust mite allergen and (ii) a promoter operably linked to the nucleotide sequence, wherein the promoter is functional in the non-pathogenic, Gram-positive bacterium; and

expressing the allergen in the non-pathogenic, Gram-positive bacterium while the non-pathogenic, Gram-positive bacterium is in the subject in an amount sufficient to suppress allergen-specific IgE production in the subject upon subsequent exposure to the allergen.

C<sup>1</sup> 25. (Previously added) The method of claim 24 in which the bacterium is of the genus *Lactobacillus*, *Streptococcus*, or *Bifidobacterium*.

26. (Previously added) The method of claim 25 in which the bacterium of the genus *Lactobacillus*.

27. (Previously added) The method of claim 26 in which the bacterium is *Lactobacillus acidophilus*.

28. (Previously added) The method of claim 24 in which the dust mite allergen is an allergen of *Dermatophagoides pteronyssinus*, *D. farinae*, *D. microceras*, *Tyrophagus putrescentiae*, *Lepidoglyphus domesticus*, *L. destructor*, *Acarus siro*, *Euroglyphus maynei*, or *Biomia tropicali*.

29. (Previously added) The method of claim 28 in which the dust mite allergen is an allergen of *Dermatophagoides pteronyssinus*.

30. (Previously added) The method of claim 24, wherein the allergen is a protein allergen.

31. (Previously added) The method of claim 24, wherein the allergen is a Der p 5 allergen.

32. (Previously added) The method of claim 29 in which the allergen is Der p 5.

33. (Previously added) The method of claim of claim 24, wherein the promoter is a constitutive promoter.

34. (Previously canceled)

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C' 35. (Previously amended) The method of claim 34, wherein the bacterium is administered in a yogurt.

36. (Amended) A method of decreasing the production of IgE in a subject exposed to a dust mite allergen, the method comprising:

orally administering to a subject a lactic acid bacterium that expresses a dust mite allergen; and

expressing the allergen in the lactic acid bacterium while the lactic acid bacterium is in the subject in an amount sufficient to suppress allergen-specific IgE production in the subject upon subsequent exposure to the allergen.

37. (Previously added) The method of claim 36 in which the dust mite allergen is an allergen of *Dermatophagoides pteronyssinus*, *D. farinae*, *D. microceras*, *Tyrophagus putrescentiae*, *Lepidoglyphus domesticus*, *L. destructor*, *Acarus siro*, *Euroglyphus maynei*, or *Biomia tropicali*.

38. (Previously added) The method of claim 36 in which the dust mite allergen is an allergen of dust mite of *Dermatophagoides* genus.

39. (Previously added) The method of claim 36 in which the bacterium is of the *Lactobacillus* genus.

40. (Previously canceled)

41. (Previously added) The method of claim 40 in which the bacterium is administered as a yogurt composition.

42. (Previously added) The method of claim 36 in which the subject is a human subject.

43. (Amended) A method of decreasing the production of IgE in a subject exposed to an protein aeroallergen, the method comprising:

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orally administering to a subject a non-pathogenic, Gram-positive bacterium that comprises (i) a nucleotide sequence that encodes a protein aeroallergen and (ii) a promoter operably linked to the nucleotide sequence, wherein the promoter is functional in a bacterial cell; and

expressing the protein aeroallergen in the non-pathogenic, Gram-positive bacterium while the non-pathogenic, Gram-positive bacterium is in the subject in an amount sufficient to suppress aeroallergen-specific IgE production in the subject upon subsequent exposure to the protein aeroallergen.

44. (Amended) A method of relieving bronchopulmonary congestion in a subject exposed to a dust mite allergen, the method comprising:


orally administering to a subject a lactic acid bacterium that expresses a dust mite allergen; and

expressing the allergen in the lactic acid bacterium while the lactic acid bacterium is in the subject in an amount sufficient to relieve bronchopulmonary congestion in the subject upon subsequent exposure to the dust mite allergen.

45. (Previously added) The method of claim 44 in which the bacterium is of the *Lactobacillus* genus, and the dust mite allergen is *Dermatophagoides pteronyssinus*.

46. (Previously added) The method of claim 24, 26, 27, or 29 wherein the promoter is the erythromycin resistance gene promoter, IdhL promoter, or P25 promoter.

47. (Previously added) The method of claim 45 wherein the bacterium is *Lactobacillus acidophilus*.

 48. (Previously added) The method of claim 43 wherein the protein aeroallergen is a protein component of a pollen, mold, animal dander, or insect.

49. (Previously added) The method of claim 24 or 43 wherein the bacterium can adhere to intestinal mucosa.

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